

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	§	
Charles Abraham	§	
	§	
Serial No.: 10/692,292	§	Atty. Docket No.: GLBL 045
	§	
Confirmation No.: 7112	§	Group Art Unit: 2688
	§	
Filed: October 23, 2003	§	Office: Dai Phuong
	§	
For: Method And Apparatus For	§	
Navigation Using	§	
Instantaneous Doppler	§	
Measurements From	§	
Satellites	§	

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

RESPONSE TO OFFICE ACTION MAILED JANUARY 25, 2006

In response to the Office Action mailed January 25, 2006, which has a shortened statutory period for response set to expire on April 25, 2006, the Applicants request the Office enter this response and reconsider the claims pending in the application for reasons discussed below. Although the Applicants believe that no fee is due in connection with this response, the Commissioner is hereby authorized to charge counsel's Deposit Account No. 50-3562 for any fees, including extension of time fees or excess claim fees, required to make this response timely and acceptable to the Office.

REMARKS

The present response is intended to be fully responsive to the rejection raised in the Office Action, and is believed to place the application in condition for allowance. Further, the Applicants do not acquiesce to any portion of the Office Action not particularly addressed. Favorable reconsideration and allowance of the application is respectfully requested.

In the Office Action, the Office noted that claims 1-22 are pending and are also rejected. In view of the following discussion, the Applicants submit that none of the claims now pending in the application are anticipated under the provisions of 35 U.S.C. §102 or obvious under the provisions of 35 U.S.C. §103. Thus, Applicants believe that all of these claims are now in condition for allowance.

REJECTIONS

A. Response to §102(b) Rejection of Claims 1-18

The Office rejected claims 1-18 as being anticipated under 35 U.S.C. §102(b) by U.S. patent No. 6,469,663 granted to Whitehead et al. ("*Whitehead*"). The rejection is respectfully traversed.

The Office contended that *Whitehead* teaches all the elements of all of the claims, including the claimed elements directed to forming augmented assistance data. As such, the Office contended that *Whitehead* teaches the claimed elements directed to combining assistance data with information that (i) is received from a satellite in a first satellite network (i.e., one satellite system), but (ii) pertains to at least one satellite in a second satellite network (i.e., a different satellite system) to form augmented assistance data, which (iii) is provided to and used by a mobile receiver to process satellite signals from at least one satellite in the second satellite network. In support of this contention, the Office cited to figures 1 and 3, col. 6, lines 15-66, and col. 7, line 48 to col. 8, line 31.

More specifically, *Whitehead* at column 6, lines 31-35 states "[a] plurality of transmitted signals 30-35 contain both L1 code and carriers from GPS and WAAS satellites, where 36 depicts the carrier's wave length [... t]he signals are received by a stationary "Reference" GPS receiver 42 and a "Rover" GPS receiver 43 which can be mobile or stationary." *Whitehead* further states "the transmitted signals 30 and 31 [i.e., GPS signals] include a satellite clock error that results in a ranging distance

error 23 [... s]imilarly, the transmitted signals 32 and 33 [i.e., WAAS signals] include a satellite clock error that results in a ranging distance error 24" ("i.e." comments added) *Id.*, at column 7, lines 4-8.

"As depicted, errors common to a single satellite are seen by both the reference and rover GPS receivers and are thus subtracted away using conventional single difference techniques as described herein" (emphasis added). *Id.*, at column 7, lines 8-10. "When the receivers 42 and 43 are close (say within 10 miles horizontal), the subtraction process also effectively eliminates atmospheric errors, such as ionosphere and troposphere induced signal delays." *Id.*, at col. 7, lines 11-14. "Due to the proximity of the reference and rover receivers, the signal from a common satellite essentially travels through the same atmospheric content so that it may be effectively lumped in with satellite clock errors." *Id.*, at col. 7, lines 11-14.

The Applicants further note that *Whitehead* at column 7, lines 25-28 states [w]hen applying a single difference to the measured ranges from the rover and reference receivers, the clock errors 40 and 41 are both present in the difference equation" (emphasis added). "However, their combination may be treated as a single clock error." *Id.*, at col. 7, lines 28-29. "Since this clock error is common to all satellites, it adds only one additional unknown to the system of equations." *Id.*, at col. 7, lines 29-31. "This unknown clock error is easily solved for using Least Squares or a Kalman filter while simultaneously solving for the 3 unknowns that constitute the receiver's position." *Id.*, at col. 7, lines 31-33. "Alternately, the clock errors 40 and 41 may be eliminated by applying a second difference equation; a technique commonly referred to as double-differencing." *Id.*, at col. 7, lines 33-35.

Whitehead at column 8, lines 16-25, also states:

"In the rover receiver, single and double differences are formed using the GPS/WAAS observations from both the reference and rover receiver. Optional ionospheric corrections 111 are applied the rover's observations to reduce errors caused by non-common, ionosphere-induced, signal propagation delays that can not be differenced away. These ionospheric corrections are made available by processing the WAAS messages for ionosphere and are applied in a unique way that benefits this application" (emphasis added).

The Applicants note that the "ionospheric corrections 111" is in the Rover Receiver 43. See *Whitehead*, at Figure 3.

In contrast, the Applicants claim a method and apparatus that includes a combination of elements directed to combining assistance data with information that (i) is received from one satellite system, but (ii) pertains to at least one satellite in a different satellite system to form augmented assistance data, which (iii) is provided to and used by a mobile receiver to process satellite signals from at least one satellite, in the different satellite network.

Specifically, the Applicants' claim 1 positively recites:

"A method of distributing information to a mobile receiver, comprising:
receiving information representing at least one of ionosphere information, clock information, and satellite integrity information from a first satellite in a first satellite network, where the received information pertains to at least one satellite in a second satellite network;

combining at least a portion of the received information with assistance data to form augmented assistance data; and

coupling the augmented assistance data to a mobile receiver, where the mobile receiver uses the augmented assistance data to process satellite signals from at least one satellite in the second satellite network" (emphasis added).

Each of the independent claims 8 and 15 recite a similar combination of claimed elements.

Contrary to the Office's contentions, the Applicants submit that the above-listed sections (and the rest) of *Whitehead* do not disclose the claimed elements directed to forming augmented assistance data, whatsoever, and as such, do not describe any process or function related to, associated with, or otherwise concerned with forming augmented assistance data, as claimed. That is, *Whitehead* does not disclose, for example, the claimed elements directed to combining assistance data with information that (i) is received from one satellite system, but (ii) pertains to at least one satellite in a different satellite system to form augmented assistance data, which (iii) is provided to and used by a mobile receiver to process satellite signals from at least one satellite, in the different satellite network.

The Applicants note that in Figs. 1 and 3 of *Whitehead*, which correspond to the aforementioned cited sections, both of the Reference and Rover receivers 42, 43 receive and process satellite signals from satellites in **both** the GPS and WAAS satellite systems (referred to therein as GPS/WAAS observations). The Applicant also notes that *Whitehead* discloses at column 8, lines 16-25 that the Rover receiver

43 uses the GPS/WAAS observations from both the reference and rover receiver to form the single and double differences. However, unlike forming the single and double differences, *Whitehead* states that the "optional ionospheric corrections 111 are applied the rover's observations." The Applicant's note that *Whitehead* does not teach that the optional ionospheric corrections 111 are applied to the Reference receiver's observations, much less teaching that the optional ionospheric corrections 111 are applied to the Reference receiver's observations so as to augment any information provided to the Rover receiver from the Reference receiver.

Instead, *Whitehead* teaches that "[t]hese ionospheric corrections [111] are made available by processing the WAAS messages," and teaches that the optional ionospheric corrections 111 are provided for in the Rover Receiver 43, and not the Reference receiver 42. As can be readily discerned from the foregoing cited sections (and the rest) of *Whitehead*, any augmenting of the GPS/WASS observations is performed by the Rover receiver 43, regardless of whether:

- (I) such GPS/WASS observations are provided to the Rover receiver 43 by the Reference receiver 42 or collected by the Rover receiver 43 itself;
- (II) the WAAS observations are used to augment the GPS observations;
- (III) the GPS observations are used to augment the WAAS observations;
- (IV) the Reference receiver's WAAS observations are used to augment the Rover receiver's WAAS observations; and
- (V) the Reference receiver's GPS observations are used to augment the Rover receiver's GPS observations.

Unlike *Whitehead*, the Applicants claim a combination of elements directed to combining assistance data with information that (i) is received from one satellite system, but (ii) pertains to at least one satellite in a different satellite system to form augmented assistance data, which (iii) is provided to and used by a mobile receiver to process satellite signals from at least one satellite, in the different satellite network. The Applicants invite the Office to review present specification, particularly paragraphs 13-15, which provide examples of such *satellite systems* and forming the augmented assistance data, and describes at least one embodiment of an assisted-SPS (A-SPS) *system* that includes two different satellite systems. See also the rest of the present application, at pages 4-14.

Since *Whitehead* lacks at least one element of each of the independent claims 1, 8 and 15, the Applicants submit that *Whitehead* does not anticipate the claimed invention under 35 U.S.C. §102(b). As such, the Applicants submit that each of the independent claims 1, 8 and 15 are patentable over *Allison*.

Claims 2-7, 9-14 and 16-18 depend, either directly or indirectly, from claims 1, 8 and 15. Since the Applicants submit that *Whitehead* fails to anticipate the independent claims 1, 8 and 15 for the reasons set forth above, the Applicants further submit that *Whitehead* likewise fails to anticipate each of the dependent claims 2-7, 9-14 and 16-18. Thus, the Applicants submit that the claims 1-18 fully satisfy the requirements of 35 U.S.C. §102, and therefore, are allowable.

B. Response to 35 U.S.C. §103(a) Rejection of Claims 19-22

The Office rejected independent claim 19 and dependent claims 20-22 as being unpatentable under 35 U.S.C. §103(a) over *Whitehead* in view of U.S. patent No. 6,529,830 ("*Eschenbach*"). The rejection is also respectfully traversed.

The Office stated that *Whitehead* in combination with *Eschenbach* teaches all of the elements of the independent claim 19 and dependent claims 20-22. The Applicant note that, like claims 1, 8 and 15, the independent claim 19 and the 20-22 (via dependency from independent claims 1, 8, 15 and 19) each includes a combination of elements directed to *information that (i) is received from one satellite system, but (ii) pertains to at least one satellite in a different satellite system*. The Applicants also note that the Office relied on *Whitehead* and not on *Eschenbach* for the proposition that it teaches this combination of elements. In addition, the Applicants note that Office relied on *Eschenbach* to teach the claimed elements of claim 19 directed to using the information (as noted above) at a server to correct pseudorange measurements received from mobile receiver.

Contrary to the Office's assertions, the Applicants submit that *Eschenbach* is entirely silent regarding *information that (i) is received from one satellite system, but (ii) pertains to at least one satellite in a different satellite system*. The Applicants therefore submit that any information received at its server is not information that (i) is received from one satellite system, but (ii) pertains to at least one satellite in a different satellite system. In addition, the Applicants note that *Whitehead* does not disclose that its Reference receiver 42 sends any information to any server for processing, whatsoever. Rather, *Whitehead* only discloses that its Reference

receiver 42 sends its GPS/WASS observations to the Rover receiver 43. The Applicants therefore submit that the combination of *Whitehead* and *Eschenbach* does not teach or suggest teach the combination of elements directed to *information that (i) is received from one satellite system, but (ii) pertains to at least one satellite in a different satellite system; and using such information at a server to correct pseudorange measurements received from mobile receiver*. As such, the Applicants submit that the combination of *Whitehead* and *Eschenbach* does not teach or suggest all the elements of the independent claim 19.

Given that each of the dependent claims 20-22 depend, directly or indirectly, from the independent claims 19, each necessarily includes all the elements of the independent claim 19. Since the combination of *Whitehead* and *Eschenbach* does not teach the elements of the independent claim 19, the Applicants therefore submit that each of the dependent claims 20-22 is not obvious under 35 U.S.C. §103(a) over *Whitehead* in view of *Eschenbach*.

CONCLUSION

In view of the foregoing, the Applicants submit that none of the claims presently in the application are anticipated under the provisions of 35 U.S.C. § 102 or obvious under the provisions of 35 U.S.C. §103. Consequently, the Applicants believe that all these claims are presently in condition for allowance. Accordingly, both reconsideration of this application and its swift passage to issue are earnestly solicited.

If, however, the Office believes that any unresolved issues still exist or if, in the opinion of the Office, a telephone conference would expedite passing the present application to issue, the Office is invited to call the undersigned attorney directly at 732-978-4899 or the office of the undersigned attorney at 732-978-7100 so that

appropriate arrangements can be made for resolving such issues as expeditiously as possible.

Respectfully submitted,

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